XPA-100

EMOTIVA®

XPA-100

Monoblock Power Amplifier
User Manual

Important Safety Precautions and Explanation of Symbols

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important installation, operation, and service instructions in this manual.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltages within the enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to the user.

Please read this Manual thoroughly before attempting to install, configure, or operate the XPA-100 power amplifier. After successful installation and configuration of the XPA-100, be sure to retain this manual in a safe place for future reference.

Safety is a key component to a long lasting and trouble free installation. Please read and follow all instructions and heed all warnings on the XPA-100 and in this manual. The vast majority of the subsequent safety precautions are common sense. If you are not comfortable with the installation of audio/video entertainment equipment, you should seek the services of a qualified installation professional or call us for help.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT USE THE XPA-100 NEAR WATER OR IN WET LOCATIONS, DO NOT EXPOSE IT TO RAIN OR MOISTURE, DO NOT EXPOSE IT TO DRIPPING OR SPLASHING FROM OTHER SOURCES, AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS (SUCH AS VASES) ARE PLACED ON IT. DOING SO MAY RESULT IN DAMAGE TO THE UNIT AND THE RISK OF ELECTRIC SHOCK, WHICH MAY RESULT IN BODILY INJURY OR DEATH.

WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER FROM THE XPA-100. THERE ARE NO USER-SERVICEABLE PARTS INSIDE THE UNIT. REFER ALL SERVICE TO QUALIFIED SERVICE PERSONNEL.

Do not install the XPA-100 near or above any heat sources such as radiators, heating vents, or other apparatus that produces heat. Do not block any ventilation openings or heat sinks. Avoid installing the unit directly above other heat-producing equipment unless sufficient ventilation or forced-air cooling is provided.

Do not install the XPA-100 in locations without proper ventilation. The XPA-100 should not be operated on a bed, sofa, rug, or similar surface that may block vents. The unit should not be installed in an enclosed location such as a bookcase, cabinet, or closed equipment rack unless sufficient forced-air ventilation is provided.

Always install your XPA-100 according to the manufacturer's instructions and only use attachments or accessories specified by the manufacturer.

Do not install the XPA-100 on any stand, shelf, or other piece of furniture that is unable to support its weight. If a cart is used to move the unit, use caution to avoid injury from tip-over.

Connect the XPA-100 only to power sources of the correct voltage (as shown in this manual and on the XPA-100 unit).

Protect power supply cables from being pinched, walked on, or otherwise damaged. Be especially careful where the power cable enters the power outlet and the unit.

Only connect the XPA-100 to an electrical outlet or extension cord of appropriate type and rating.

DO NOT defeat the safety purpose of a grounding or polarized plug by removing ground pins or using unsafe adapters. A polarized plug has two blades - one wider than the other. A grounding plug has a third ground prong in addition to the two main conductors. The wide blade or third groundling prong is provided for your safety. If the provided plug does not fit your outlet, consult an electrician to replace your obsolete outlet. If you replace the power cord, only use one of similar type and equal or greater current rating.

The power cable for the XPA-100 should be unplugged from the outlet during severe electrical storms, or when unused for a long period of time.

Only replace the fuse(s) in the XPA-100 with fuse(s) of proper value and voltage rating.

The XPA-100 should only be cleaned as directed in the Manual. Avoid spraying liquids directly onto the unit and NEVER spray liquids into the vents. Care should be taken so that small objects do not fall into the inside of the unit.

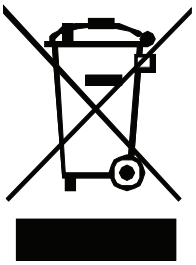
You should seek service for your XPA-100 by qualified service personnel if any of the following occur:

1. The power-supply cord or the plug has been damaged.
2. Objects or liquid have fallen or spilled into the vents.
3. The unit has been exposed to rain.
4. The unit exhibits a marked change in performance.
5. The unit has been dropped, or its enclosure or chassis is damaged.

NOTE: TO COMPLETELY DISCONNECT THE XPA-100 FROM THE AC POWER MAINS, DISCONNECT THE AC POWER CORD FROM THE AC RECEPTACLE.

NOTE: THE POWER CORD ON THE XPA-100 MUST REMAIN READILY ACCESSIBLE AT ALL TIMES.

CAUTION
CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



XPA-100 Monoblock Power Amplifier

Contents

Important Safety Precautions and Explanation of Symbols

XPA-100 Monoblock Power Amplifier 1

Introduction.....3

About This Manual.....4

Features 5

Unpacking.....6

XPA-100 Front and Rear Panels 7

Quick Start.....9

Connections.....10

Configuration and Operation 11

Care and Maintenance 12

Specifications 13

Troubleshooting.....15

Emotiva Audio Corporation Five-Year Limited Warranty 16

Accessories 18

Notes 19

Introduction

Thank you for purchasing your new XPA-100 monoblock power amplifier.

The XPA-100 is the perfect building block to use as the foundation of a truly superb stereo or surround sound system. The XPA-100 delivers 250 watts into 8 Ohms (or 400 watts into 4 Ohms) of clean, clear, audiophile quality sound. Because each channel is amplified in perfect isolation by its own XPA-100, even the slightest hint of interaction between channels is eliminated, and your music is assured of sounding its absolute best.

Inside, the XPA-100 boasts the advanced engineering, high quality components, heavy-duty toroidal transformer power supply, proven Class A/B technology, and comprehensive protection you expect from Emotiva. Outside, you get classic Emotiva styling, a gold plated RCA unbalanced input jack, and two pairs of full-sized, five-way binding posts to facilitate bi-wiring.

We think it’s a great sounding combination, and we’re sure you’ll agree.

Happy listening!

The Emotiva Team

About This Manual

This User Manual will provide you with the information you need to get started enjoying your XPA-100 monoblock power amplifier. For more detailed information, including specifications, please download the full-length version of the User Manual from our website at www.emotiva.com.

We suggest that you read through the entire manual; we kept things as short and direct as possible. Even if you're an expert user, you will probably find some interesting information and useful suggestions.

If you're really in a hurry to get started, please read the Quick Start section (on page 9); you may then read the remainder of the manual at your leisure.

You may wish to keep a copy of this manual with your records, and record serial numbers or other purchase information on the Notes page at the back.

Features

The XPA-100 is an audiophile-grade monoblock power amplifier that provides a single channel of superb quality audio amplification. As audiophiles have long been aware, using a separate monoblock power amp for each channel totally eliminates channel interactions, and ensures that the best and cleanest audio signal is sent to each speaker. You can use a matched pair of XPA-100s to power a really great stereo system, or a set of five as the core of a truly excellent surround sound system.

The XPA-100 features our fully discrete, high-current, short signal path class A/B output section, and all the advanced engineering and high quality construction you've come to expect from Emotiva. The XPA-100 offers you an economical way to experience the absolute best in audiophile sound quality.

Features offered by the XPA-100 include:

- **True audiophile-quality sound** - the XPA-100 was designed first and foremost to sound superb in both music and home theater systems.
- **Great sounding Class A/B topology and advanced engineering** - ensure smooth, detailed sound and incredibly natural imaging while maintaining efficient performance.
- **Heavy duty power supply with oversized toroidal transformer** - provides plenty of real power for demanding program material, and has plenty of reserves to deliver signal peaks without any sense of strain.
- **Totally stable** - designed for use in the real world, with real speakers.
- **Classic Emotiva styling** - looks great in any home theater rack or living room.
- **Low profile 2RU chassis** - provides for easy stacking, and lets you fit five XPA-100s in a single rack.
- **Full-sized five-way speaker binding posts** - allow you to use a wide range of speaker cables with bare wires, lugs, or banana plugs.
- **Solid machined gold-plated RCA input connector** - provides a reliable connection with a wide variety of audio interconnects.
- **Top quality parts and construction** - promise you years of reliable service.
- **Remote trigger input and trigger output** - for turn on/off with trigger-enabled equipment.
- **Audiophile-grade fault protection** - entirely transparent under normal conditions, yet protects the amp and your other equipment from all common fault conditions.
- **Universal AC line voltage operation -** 115 VAC or 230 VAC (with automatic detection and switching).
- **Fully transferable five-year warranty** - ensures that you'll be able to enjoy your XPA-100 for years to come.

You can find more information about the Emotiva XPA-100 on our website at www.emotiva.com.

Unpacking

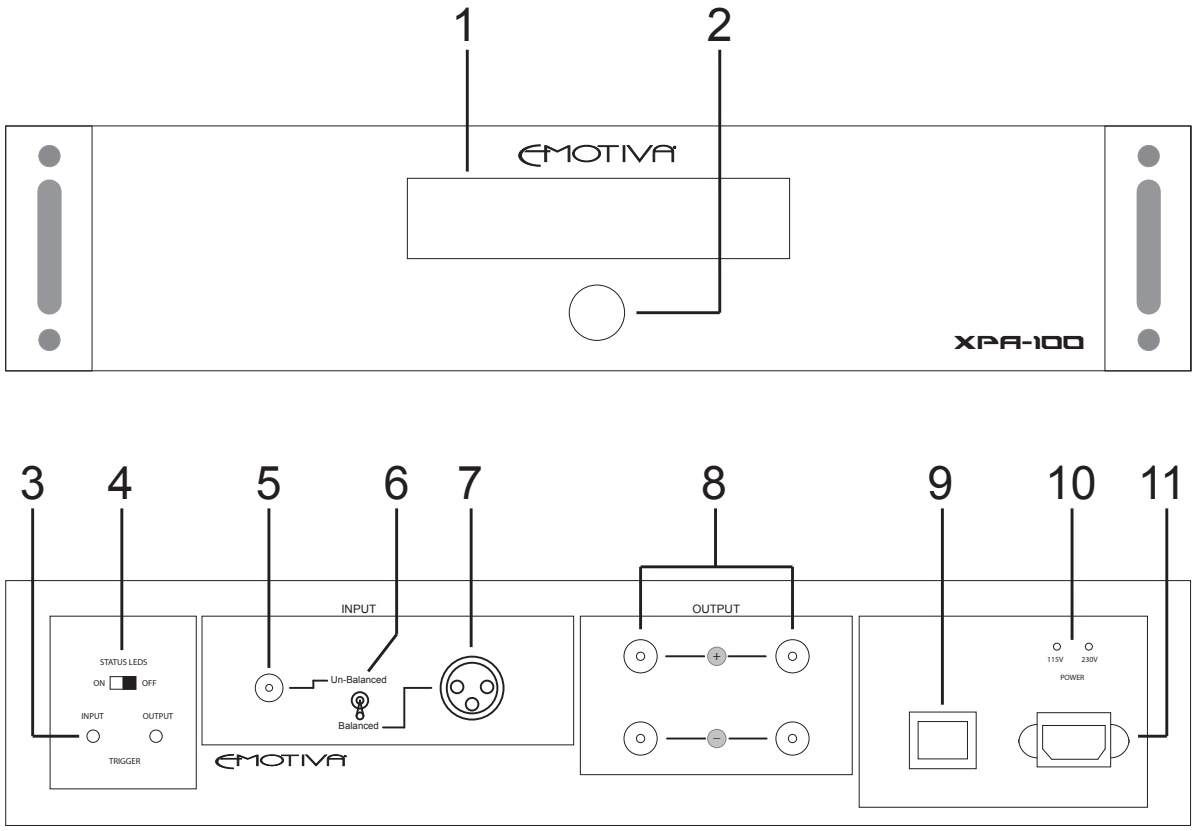
Your XPA-100 was carefully packed and should reach you in perfect condition. If you notice any shipping damage or other issues when you unpack it, please contact Emotiva immediately.

Gently remove your XPA-100 from the packing carton and remove all wrappings and shipping material.

It is important to save the box and all packing materials in case your power amp ever needs to be moved or shipped back to the factory for service.

We truly value customer feedback and would like to hear from you.

XPA-100 Front and Rear Panels



1. Status Display Window

This window houses two status LEDs. When the XPA-100 is Off or in Standby mode, neither LED will be lit. When the XPA-100 is powered On, the red LED will illuminate for a few seconds and then go out, at which point the blue status LED will light. The blue LED will remain lit in normal operation. If a fault occurs, the red LED will flash and the blue LED will be extinguished.

Note: The Status LED switch on the rear panel disables the LEDs when set to Off.

2. Standby Button

Press to switch the amplifier On; press again to return to Standby; the halo ring around the button illuminates amber for Standby and blue for On.

3. Trigger Input and Trigger Output

The XPA-100 is switched On (from Standby) when a trigger signal is presented at the Trigger Input; the XPA-100 returns to Standby when the trigger signal is removed. When the XPA-100 is on, a 12 VDC signal is sent from the Trigger Output to control other devices.

4. Status LED Switch

Disables the front panel status LEDs when set to Off.

5. Unbalanced (RCA) Input

Solid machined gold-plated RCA jack accept a line level unbalanced input.

6. Un-Balanced / Balanced Selector Switch

Switches between the Unbalanced (RCA) and Balanced (XLR) inputs. Up selects the Unbalanced input and Down selects the Balanced input. Only one input can be used at once for each channel. (It is allowed to plug in both a balanced and an unbalanced source and use the switch to select between them, but only one will be active at once.)

7. Balanced (XLR) Input

Standard XLR connector accepts a line level balanced input.

8. Speaker Terminals

Full-sized five-way binding posts accept banana plugs, lugs, or bare wire. Two pairs of binding posts are provided to facilitate bi-wiring.

Note: Both pairs of speaker terminals carry the same signal. Two pairs of terminals are provided to facilitate bi-wiring.

9. AC Power Switch

Switches the mains AC power to the XPA-100 On and Off. When this switch is Off, no controls operate (the XPA-100 cannot be turned On from the front panel or by a trigger signal).

10. Input Voltage Indicator

The XPA-100 automatically detects and switches between 115 VAC and 230 VAC. These indicators tell you which line voltage the XPA-100 has detected.

11. IEC Power Cord Receptacle

Accepts a standard removable IEC AC power cable (a high-quality commercial power cable is included).

Quick Start

To get the most from your XPA-100, we urge you to read the entire manual. If you just can't wait to listen to it, this section will cover the basics you need to get started.

- Find a secure location for your XPA-100
- Connect your XPA-100 to a signal source.
- Connect your XPA-100 to a speakers (4 ohm or 8 ohm) using reasonably heavy gauge speaker wires (at least 18 gauge). Actually, you're probably using two XPA-100s for stereo, so make that "pair of speakers".
- Find some music you *really* like to listen to.
- Turn on the AC Power switch and turn up the volume a bit!
- Enjoy!

While you're enjoying your XPA-100s, it would be a great time to read the rest of the manual to learn more about it.

Connections

Connecting speakers to your XPA-100

Your XPA-100 has no special connection requirements; five-way binding posts are provided for speaker connections.

- **Always** turn off the amplifier before connecting or disconnecting speaker cables or signal source interconnects.
- **Always** verify that your speaker cables are firmly attached, and not shorted to each other or to any other cables, before powering up your XPA-100.
- **Always** use high-quality speaker wire; 18-gauge or heavier.
- If you must use thinner wire, try to keep the length as short as possible.
- Be careful to wire all speakers “in phase” (the plus/red terminal on each speaker to the plus/red terminal on your amp).
- Try to use wires of equal length and gauge for both speakers in each pair (use the same gauge and length for both fronts, or for both surrounds; don’t use a long 16-gauge wire for one speaker and a short 10-gauge wire for the other).
- If you use stranded cables, use care to avoid short circuits (from stray strands touching).
- Emotiva offers very high-quality, pre-made speaker cables at reasonable prices. You will find them in the Interconnects section of our website at www.emotiva.com.
- Two pairs of speaker terminals are provided on the XPA-100 to facilitate bi-wiring (both sets of terminals carry the same audio signal). You may connect two speakers (one to each set of terminals) only if each speaker has an impedance of 8 Ohms or greater.

Connecting an input source to your XPA-100

Your XPA-100 amplifier has both a balanced (XLR) and unbalanced (RCA) input; a switch selects which input is active. Be sure to set this switch correctly. If your source component offers both types of outputs, a balanced connection is generally preferred, especially for long cable runs and in noisy environments. We suggest using reasonably high quality cables, keeping cables no longer than necessary, and avoiding running signal cables near power cables and speaker cables whenever possible.

DO NOT connect a digital signal to the inputs of your XPA-100 (or you may damage it or your speakers).

Connecting the Trigger Input and Trigger Output

The Trigger Input accepts a 12 VDC (nominal) trigger signal from another device via a standard 1/8” mono plug. When the trigger is asserted, the XPA-100 will switch On; when the trigger is removed, the XPA-100 will return to Standby mode. The Trigger Output sends out 12 VDC whenever the main power to the XPA-100 is On (and NOT when it is in Standby mode) which can be used to switch on other units with trigger capabilities.

Configuration and Operation

Line Voltage

The XPA-100 can operate from line voltages of 115 VAC +/- 10% or 230 VAC +/- 10%. The amplifier will automatically detect which line voltage it is connected to and configure itself accordingly. The Line Voltage indicators will tell you which line voltage the XPA-100 has detected.

AC Power Switch (rear panel)

The rear-panel AC Power switch controls the main AC power for your XPA-100. When this switch is in the Off position, the amplifier will not operate. Turning it On will put the XPA-100 into Standby mode.

Standby Switch (front panel push button)

Press to switch the amplifier On; press again to return to Standby; the halo ring around the button illuminates amber for Standby and blue for On.

Un-Balanced / Balanced Selector Switch

Switches between the Unbalanced (RCA) and Balanced (XLR) inputs. Up selects the Unbalanced input and Down selects the Balanced input. Only one input can be used at once. (It is allowed to plug in both a balanced and an unbalanced source and use the switch to select between them, but only one will be active at once.)

Status LED Switch

Disables the front panel status LEDs when set to Off.

Trigger

When a trigger cable is connected to the Trigger Input (on the rear panel), and a trigger signal is received (between 5-20 V - AC or DC), the XPA-100 will switch from Standby to On; when the trigger signal ceases, the XPA-100 will return to Off.

The trigger is typically connected to the preamp or pre/pro that provides a signal source for the XPA-100, and set to turn the XPA-100 on when the preamp or pre/pro is turned on.

Whenever the XPA-100 is On, the Trigger Output will assert a 12 VDC signal, which may be used to turn on other equipment.

Care and Maintenance

Periodic Maintenance

Your XPA-100 requires no periodic maintenance or calibration.

Cleaning your XPA-100

- If necessary, the XPA-100 should be cleaned gently with a soft rag.
- If something sticky gets on the front panel or case of the XPA-100, it should be cleaned with a mild cleaning solution applied to a soft rag, followed by wiping with a clean rag dampened with plain water and drying with a soft dry rag or cloth.

Note: DO NOT spray water or cleaning solution directly onto the XPA-100 or into the vents.

Specifications

Topology:

Fully discrete, dual differential, high current, short signal path Class A/B.

Number of Channels:

1

Power Output (rated power; THD < 1%):

250 watts (1 channel) into 8 Ohms.
400 watts (1 channel) into 4 Ohms.

Rated Power Bandwidth (at rated power; 8 Ohm load):

10 Hz to 20 kHz + / - 0.07 dB.

Minimum Recommended Load Impedance:

4 Ohms (which equals one 4 Ohm load or two paralleled 8 Ohm loads).

Frequency Response:

10 Hz to 80 kHz (+ 0 / - 1 dB).

THD + noise:

< 0.02%

Signal to Noise Ratio (8 Ohm load):

> 89 dB at 1 watt (A-weighted).

> 112 dB at rated power (A-weighted).

Damping Factor (8 Ohm load):

> 500

Speaker Output Connections:

Full-sized, 5-way binding posts; two pairs per channel (one channel).

Power Supply:

60,000 uF of storage capacitance.
360 VA heavy duty toroidal transformer

Input Sensitivity (for rated power; 8 Ohm load):

1200 mV.

Gain:

29 dB.

Input Connections:

Unbalanced (RCA); balanced (XLR); one each.

Input Impedance:

47 kOhms.

Trigger:

Trigger Input: 5 - 20 V (AC or DC); <10 mA input current required.
Trigger Output: 12 VDC; can drive any load up to 50 mA.

Power Requirements:

115 VAC or 230 VAC +/- 10% @ 50 / 60 Hz (automatically detected and switched).

Front Panel Controls and Indicators:

Standby; push button (halo ring changes color to indicate Standby or On).
Status LEDs (two); blue LED illuminates for normal operation, red LED flashes during power-on or when a fault occurs; (may be disabled by rear panel Status LED switch).

Rear Panel Controls:

AC Power switch; rocker switch (switches AC mains power).
Status LEDs switch; small slide switch on left (disables front panel Status LEDs and dims. Standby button halo lighting).
Input selector; toggle switch (selects between balanced and unbalanced inputs).

Protection:

The XPA-100 is protected against excessive operating temperature, shorted speaker connections, ground faults, and other common fault conditions.

Dimensions:

17” wide x 3.875” high x 19” deep (includes feet and binding posts).

Weight:

27 pounds unboxed (33 pounds boxed).

Troubleshooting

The XPA-100 is carefully designed and manufactured from high-quality precision components to ensure years of trouble free operation. We really doubt you'll ever have any problems with your XPA-100 but, if you do, here are a few things you could try:

Problem: No output (nothing is lit).

Reason: You have no AC power.

- Verify that the rear panel AC Power switch is On.
- Verify that your circuit is live.
- Verify that the line cord on the XPA-100 is fully inserted and is tight.

Problem: The XPA-100 is operating normally, but neither of the front panel status LEDs are lit.

Reason: The front panel status LEDs are turned off.

- Set the Status LED switch on the rear panel to On.

Problem: No sound or distorted sound is heard; the Standby button halo is lit blue; the status LED is lit blue.

Reason: The XPA-100 is not indicating a Fault condition.

- Check your source.
- Check your speakers and speaker connections.

Problem: No sound is heard; the status LED is flashing red.

Reason: The XPA-100 is in Protect mode, which indicates a Fault condition.

- Switch the rear panel AC Power switch Off and On to clear the Fault condition.
- If the fault remains, look for a shorted speaker cable or damaged speaker.
- Check your sources and source connections (a bad interconnect, DC on the input, or an otherwise bad source component can cause a fault).

Problem: The halo around the Standby button is lit amber and the XPA-100 fails to come on when triggered.

Reason: The XPA-100 is in Standby mode and should respond to a valid trigger signal.

- Check your trigger cable.
- Check the trigger settings on your source equipment.

Emotiva Audio Corporation Five-Year Limited Warranty

What does this warranty cover? Emotiva Audio Corporation ("Emotiva") warrants its products against defects in materials and workmanship.

How long does this coverage last? This warranty commences on the date of retail purchase by the original retail purchaser and runs for a period of five years thereafter. This warranty is transferable to any person that owns the warranted product during the Term. Emotiva warrants any replacement product or part furnished hereunder against defects in materials and workmanship for the longer of the following: (i) the amount of time remaining under the original warranty, or (ii) 120 days from your receipt of the repaired or replaced product. The duration described in the previous 2 sentences is hereinafter referred to as the "Term". TO THE FULLEST EXTENT PERMITTED BY LAW, ALL IMPLIED WARRANTIES RELATED TO THE ORIGINAL PRODUCT AND ANY REPLACEMENT PRODUCT OR PARTS (INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) ARE EXPRESSLY LIMITED TO THE TERM OF THIS LIMITED WARRANTY. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. A claim under this warranty must be made by you within the Term. A claim shall not be valid (and Emotiva has no obligation related to the claim) if it is not made within the Term and if it is not made in strict compliance with the requirements of the "How do you get service?" section.

What will Emotiva do? Emotiva will, at its option, either: (i) repair the product, or (ii) replace the product with a new consumer product which is identical or reasonably equivalent to the product. Emotiva may provide you with a refund of the actual purchase price of the product in the event (i) Emotiva is unable to provide replacement and repair is not commercially practicable or cannot be timely made, or (ii) you agree to accept a refund in lieu of other remedies hereunder. When a product or part is repaired or replaced, any replacement item becomes your property and the replaced item becomes Emotiva's property. When a refund is given, the product for which the refund is provided must be returned to Emotiva and becomes Emotiva's property.

What is not covered by this warranty? This warranty does not apply: (i) to damage caused by use with non-Emotiva products, where the non-Emotiva product is the cause of the damage; (ii) to damage caused by service or maintenance performed by anyone who is not a representative of Emotiva; (iii) to damage caused by accident, abuse, misuse, flood, fire, earthquake or other external causes; (iv) to a product or part that has been modified after its retail purchase, where the modification caused or contributed to the damage; (v) to consumable parts, such as batteries; or (vi) if any Emotiva serial number has been removed or defaced and Emotiva cannot otherwise confirm that you are the original retail purchaser.

EMOTIVA SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM OR RELATED TO ANY DEFECTS IN OR DAMAGES TO ITS PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

How do you get service? In order to make a claim under the warranty, you must:

1. Call a customer service representative ("CSR") of Emotiva at 1-877-EMO-TECH (1-877-366-8324). Provide the CSR with a description of your problem and the serial number of the product for which the warranty claim is being made.
2. The CSR will provide you with a returned material authorization number ("RMA").
3. Ship the product to Emotiva at the following address, with the RMA written in large, bold numbers on the outside of the box, and with the letters "RMA" written before the number. Parcels arriving without an RMA number on the outside of the box will be refused.

Emotiva Audio Corporation
Attn: Repair Department
135 Southeast Parkway Court
Franklin, TN 37064

How does state law apply? This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Accessories

Speaker cables

Using high-quality speaker cables and audio interconnects will ensure that you get the best sound quality and maximum reliability from your XPA-100 amplifier and the speakers connected to it. Emotiva Audio offers high-quality speaker cables and audio interconnects that feature solid engineering, premium build quality, excellent performance, and reasonable cost (you will find them on our website at www.emotiva.com)

Rack ears and rack mount brackets for the XPA-100 are available in in the accessories section of our website at www.emotiva.com

Notes

All information contained in this manual is accurate to the best of our knowledge at the time of publication. In keeping with our policy of ongoing product improvement, we reserve the right to make changes to the design and features of our products without prior notice.

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